

**GRANT-PLATTE RIVERS  
STATE OF THE BASIN REPORT**

**VOLUME 4**

**PLATTE RIVER WATERSHED NARRATIVE**

**(GP02)**

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## PLATTE RIVER WATERSHED (GP02)

The second largest watershed, the Platte River watershed, covers 198 square miles in central and east-central Grant County with a small portion in extreme western Iowa County. It has an area of about 194 square miles making it the second largest watershed in the basin. The Platte River is the primary waterbody in the watershed. The river's historical records for the river record it to be deep enough to allow steamboats to ply its lower reaches. The upper reaches of the watershed are on Military Ridge. Where the land is rolling and well suited to cultivation. The rest of the watershed's topography consists of narrow ridgetops, and steep slopes down to a narrow valley floor. The ridgetops are usually cultivated, while the steep valley slopes have been left in woods, similar to the pre-settlement condition.

There are about 215 stream miles in the watershed. There are 30.8 miles of cold water (trout) streams, approximately 60 miles of warm water sport fishery streams, 48.2 miles of warm water forage fishery streams, and 3.2 miles of limited aquatic life streams. The existing biological use of the remaining stream miles have not been determined, but are assumed to be full fish and aquatic life waters. Portions of four streams in the watershed, totaling 10.5 miles, are currently on Wisconsin's list of impaired waters, the 303(d) list. Those streams are Culver Branch, a short reach of Leggett Creek, a portion of Martinville Creek, and McPherson Branch. Each are on the list due to instream habitat impairment caused by nonpoint sources of pollution.

Due to the watershed's steep slopes, streams in the watershed suffer from very rapid runoff during storm events. Soil loss from farm fields and pastures leads to sedimentation in streams in the watershed and in Pool 11 of the Mississippi River. The Platte River watershed is estimated to have a sediment yield of 182 tons per square mile annually (Grant County LCD, 1997). The streams in the watershed and the watershed overall has been ranked as a medium priority with respect to nonpoint source pollution. The groundwater in the watershed has been determined to have a high potential for contamination.

The Platte River, Crow, Culver, Lee, Leggett, and McPherson Creeks have been ranked high for nonpoint source pollution abatement projects.

**Agriculture** - Agriculture is the dominant land use in the watershed and over 70% of the watershed's area is actively farmed (Fix, 1991). The watershed has many acres of intensively cropped farmland on highly erodible land. Stream bank erosion, from overgrazing streambanks or flooding, is also a major problem (Grant County, 1997). The Platte River watershed has one of the highest livestock concentrations in Wisconsin (ibid.). Runoff from problem barnyards and feedlots add to the sediment and nutrient problems in receiving surface waters. Two best management practices can be implemented to protect streams. One is providing stream buffers to stabilize stream banks, provide habitat, and filter out pollutants which otherwise would reach the stream (Lyons et. al., 2000b). A second practice that provides a similar result is rotational grazing (Lyons,et.al., 2000a).

Grant County LCD and the county office of the NRCS jointly initiated a USDA EQIP project in the Platte River Watershed (Environmental Quality Incentives Program), in the summer of 1998. Average soil loss for cropland in the Platte River watershed is estimated at eight tons/acre/year (Grant County, 1997) which compares with the tolerable (T) or target goal for soil loss in the watershed of five tons/acre/year. The water resources objectives of the Platte River watershed EQIP project are to obtain water quality, fish and wildlife habitat improvements by reducing

sheet and rill erosion, streambank erosion, and manure and cropland runoff through a variety of farm management best management practices, including contour farming, conservation tillage, rotational grazing, grade stabilization structures, streambank stabilization, sediment basins, filter strips, manure storage, nutrient management, fencing and livestock exclusion (ibid.).

**Nonpoint Source Pollution** - Based upon watershed reconnaissance conducted in the fall of 1997 and spring of 1998, monitoring streams in the watershed, and professional judgment of DNR staff, there are still a number of land management problems, including soil erosion from cultivated fields, overgrazing of streambanks, and exposed and eroding streambanks, around smaller cool and cold water streams in the upper portion of the Platte River watershed. The current work involved in the Platte River EQIP project should help to address some of the problem sites in the watershed. However, there is a continued need to consider these streams for small-scale nonpoint source pollution abatement projects as well.

A major reconstruction of US Highway 151 from Dickeyville to Belmont is scheduled to begin in the year 2002. Sediment coming from the site could threaten instream habitat and fisheries of nearby streams if adequate erosion control measures are not installed and properly maintained. Because of the topography of the area such measures may need to go beyond the standard Wisconsin Department of Transportation measures. The stream in this watershed potentially threatened is Indian Creek near Dickeyville.

**Municipalities** There are three municipal Wisconsin wastewater discharge permitted facilities in the watershed. They are **Orchard Manor** with a discharge to a tributary of Austin Branch, **Dickeyville** (931) with a discharge to a tributary to Indian Creek, and **Potosi-Tennyson** that discharges to a wetland in Pool 11 of the Mississippi River. None of these are considered large or major municipal dischargers. Dickeyville is growing at a relatively slow rate, so urban nonpoint source pollution from construction sites and stormwater runoff is not a major concern. Care still needs to be taken to properly control erosion from construction sites in the community. The wastewater treatment plants in the watershed do not constitute a threat to water quality as long as they are properly operated and maintained.

Public recreation in the watershed is limited by lack of public lands. Access to streams is scattered throughout the watershed and at road crossings.

## **SURFACE WATER NARRATIVES**

The Platte River Watershed has a number of unnamed tributaries to the named streams in the watershed. While usually smaller than the named streams, many of them appear to have the potential to have good instream habitat and water quality. All the unnamed streams observed in this watershed also have rural nonpoint sources of pollution that may be affecting the habitat and water quality. The sources range from barnyards adjacent streams to over-grazing along streambanks and cropland erosion. No narrative for a specific unnamed tributary is presented here, but many of these streams are worthy of further study and possible water resources and fisheries, and land management projects.

**Austin Branch** - Austin Branch is a small tributary to the Platte River in central Grant County. It is classified as a class II trout stream (WDNR, 1980). Water quality and instream habitat are impaired by nonpoint sources of pollution (Fix, 1991). Best management practices, particularly stream buffer corridors and managed grazing, would help protect and improve the stream.

**Bacon Branch** - Bacon Branch is a spring fed tributary to Bull Branch west of Arthur. Intense streambank grazing and bank erosion seem to be the primary problems that have affected instream habitat. Recent fish surveys show a lower number of fish species, all forage fish, and a smaller total number of fish than in Bull Branch (Wang, 1996). Recent macroinvertebrate monitoring indicates that the stream has better water quality than most of the streams monitored (Marshall, 1999). The HBI, a biotic index that uses aquatic organisms, for the stream indicates good water quality, although there was a high percentage of midges found in the macroinvertebrate sample. Midges can often be indicators of an ecological disturbance due to agricultural sources of nonpoint pollution (Gamman, 1983).

**Bull Branch** - Bull Branch is a spring fed tributary to the Platte River east of Lancaster. Bull Branch is intermittent above its confluence with Bacon Branch (Lyons, 2000). Nonpoint sources of pollution have affected water quality and instream habitat. Recent fish surveys have identified 15 fish species in the stream and a large total number of fish identified (Wang, 1996). Some sport fish (smallmouth bass) were among the fish identified although they likely migrated from the Platte River.

**Crow Branch** - This small spring-fed stream is tributary to the Platte River west of the Village of Livingston. Water quality and poor instream habitat impair uses of the stream, although land management activities have improved in some reaches. Crow Branch is currently classified as a class II trout for 2.5 miles of its length (WDNR, 1980). The stream has been somewhat impaired over the years due to excessive streambank grazing and runoff from farm fields and barnyards. Two species listed on the state's threatened and endangered species list have been found in Crow Branch (Lyons, 2000). One of these species is especially sensitive to water pollution. Nonpoint source best management practices, particularly stream buffer corridors and managed grazing, would help protect and improve the stream.

**Culver Branch** - Culver Branch is a spring fed tributary to the Platte River just south of the community of Ellenboro. It is considered a class II trout stream (WDNR, 1980). Its biological and recreational uses have been impaired over the years by agricultural nonpoint sources of pollution resulting in its listing on the 303(d) list of impaired waters. A species listed on the state's threatened and endangered species list has historically been found along Culver Branch (WDNR, 1997). This endangered species is very sensitive to water pollution. Nonpoint source best management practices, particularly stream buffer corridors and managed grazing, would help protect and improve the stream.

**Leggett Creek** - Leggett Creek is a tributary to the Platte River in central Grant County. Seven miles of the creek are considered to be a class II trout stream (WDNR, 1980). Its uses are impaired by nonpoint source pollution. This stream is very flashy and water levels can rise very quickly during runoff events. Therefore, streambank erosion is a problem as well as cropland runoff. Intense grazing next to the stream also adds to the erosion problem. A headwaters reach of Leggett Creek was added to the state's impaired streams list in 1998 due to problems resulting from nonpoint source pollution. Leggett was one of the southwest Wisconsin streams monitored as part of an intensive rotational grazing study (Lyons, et.al., 2000). There is landowner support for streambank stabilization and improvement projects on Leggett Creek. A species listed on the state's threatened and endangered species list is found in Leggett Creek (Lyons, 2000).

**McPherson Branch** – McPherson Branch is a spring-fed cold water tributary to the Platte River near the community of Ellenboro. About 1.5 miles is currently considered a class II trout stream. Recent fish surveys have resulted in the stream being proposed to be upgraded to a class I trout stream (WDNR, 2000). This change, once approved, will make McPherson an Exceptional Resource Water in the State of Wisconsin. Agricultural nonpoint sources of pollution are present in its watershed and McPherson Branch is also listed on the state's list of impaired streams due to problems resulting from this pollution. Nonpoint source best management practices, particularly stream buffer corridors and managed grazing, would help protect and improve the stream. The Harry and Laura Nohr Chapter of Trout Unlimited is in the process of conducting in-stream habitat work on McPherson Branch during the summer of 2001.

**Martinsville Creek** - Martinsville Creek is a tributary to the Platte River west of Livingston. It is considered to a class II trout stream for two miles of its length (WDNR, 1980). Nonpoint sources of pollution, particularly barnyard runoff and overgrazing of stream banks, impair its uses. Improved land management practices would improve instream water quality conditions, fish populations and instream habitat. Martinsville Creek was added to the state's impaired streams list in 1998 due to problems resulting from nonpoint source pollution. Nonpoint source best management practices, particularly stream buffer corridors and managed grazing, would help protect and improve the stream.

**Newell Creek** - Newell Creek is a tributary to Leggett Creek. The lower four miles of it are considered to be class II trout waters (WDNR, 1980). Visual observations by DNR staff in 1997 and 1998 at the two road crossings of the creek indicated that water quality and instream habitat conditions in the creek may have improved since 1991 (Fix, 1998). However, although streambanks were vegetated and stable at the Grandview Road crossing, other areas of the creek are susceptible to streambank erosion and a widening of the stream channel. Nonpoint source best management practices, particularly stream buffer corridors and managed grazing, would help protect and improve the stream. There is some interest among stakeholders in the Newell Creek Watershed in conducting in-stream habitat, riparian habitat and water quality improvement work to benefit the fishery of the stream.

**Platte River** - The Platte River rises near the community of Montfort on the south flank of the Military Ridge. It flows 47 miles to its confluence with the Mississippi River at Pool 11 near Dickeyville. The river winds through scenic areas and offers recreational potential for canoeing in some reaches. About 5.5 miles of it above the Annaton Road crossing near Annaton are considered class II trout waters. Here the stream has a moderate to fast current, and narrow to medium width with numerous riffles and smaller pools. Downstream the water warms as it becomes wider and the stream classification changes to a warm water sport fishery stream. The reach downstream of Annaton supports a smallmouth bass fishery. Recent reconnaissance of the smallmouth bass fishery in the river turned up few bass and fish monitoring done at two sites on the Platte River between 1994 and 1996 has shown a fluctuating bass population (Kerr, 1998; Wang, et.al.,1996). Closer to its mouth the sport fishery becomes more dominated by channel catfish and northern pike.

The Platte River carries a very large load of sediment to the Mississippi River annually. The cumulative impact of the excessive nutrient loading from the entire Mississippi River basin, particularly the upper portion in Iowa, Illinois, Minnesota and Wisconsin, can be seen in the hypoxia problem in the Gulf of Mexico (EPA, 1999). The sediment from the Platte River Watershed also fills pools in the Platte River affecting instream habitat. Nonpoint sources of

pollution appear to be the primary impairment of habitat and water quality in the stream. Nutrients attached to the sediment encourage excessive aquatic plant and/or algae growth. Recent macroinvertebrate monitoring indicated that the stream has better water quality than most of the streams monitored (Marshall, 1999). Overall, these results have shown the river to have good water quality with a higher percentage of mayflies, caddisflies and stoneflies than the other streams monitored at the same time. Despite this, however, there was also a large population of midges, which can indicate ecological disturbances that often can be attributed to agricultural sources of nonpoint pollution. A western tributary to the Platte River that enters just above Bacon Branch was also sampled. Those samples found good water quality, but with a higher percentage of midges and fewer mayflies, caddisflies, and stoneflies (Marshall, 1999). A high percentage of midges can be an indication that the stream is impacted from agricultural sources of nonpoint pollution (Gamman, 1983).

A group of citizen volunteer stream monitors have taken an interest in the water quality of the river. The group began monitoring water clarity, temperature, and dissolved oxygen downstream from Rock Church Road in the summer of 2000. The group found this section of the river to have good water temperature and dissolved oxygen levels while water clarity could be low after a rain event (Trout Unlimited, 2001).

Two pollution intolerant species listed on Wisconsin's threatened and endangered species list have historically been found in the Platte River (WDNR, 1997). Nonpoint source best management practices, particularly in the reach above Annaton Road, would help protect and improve the stream and protect aquatic habitat and wildlife. Specific best management practices would include adequate stream buffers and managed grazing.

**Willow Branch** - Willow Branch is a spring fed tributary to the Platte River near Ellenboro. Fish surveys in recent years have turned up small numbers of smallmouth bass in the stream (Wang, et.al., 1996). Macroinvertebrate samples collected in 1995 and 1996 found Willow Branch to have good water quality. Approximately 20 percent of the macroinvertebrates sampled were mayflies, caddisflies and stoneflies and nearly 50% were midges (Marshall, 1999). High numbers of midges have been linked to streams that are affected by agricultural sources of nonpoint pollution (Gamman, 1983). Streambank grazing may also be affecting instream habitat of Willow Branch.

Willow Branch has a significant population of a species listed on the state's threatened and endangered species list (Lyons, 2000). In addition, a second species that is very sensitive to water pollution had historically been found along Willow Branch in the 1980's (WDNR, 1997).

## **RECOMMENDATIONS FOR THE PLATTE RIVER WATERSHED**

### **Nonpoint Source Pollution**

- ◆ The DNR should continue to cooperate with the Grant County LCD and the local NRCS office on the **Platte River** EQIP project.
- ◆ The following streams and their subwatersheds should be considered for selection as Targeted Runoff Management (TRM) projects: **Crow Branch, Culver Branch, Lee Branch, Leggett Creek, Martinville Creek, McPherson Branch**, and the reach of the **Platte River above Annaton Road**.



- ♦ The DNR should work closely with the Wisconsin Department of Transportation, Southwestern Wisconsin Regional Planning Commission, and with Grant County LCD on reviewing erosion control measures associated with the reconstruction of US Highway 151 to assure maximum protection of nearby streams.

### **Protecting and Improving Water Quality and In-Stream Habitat**

- ♦ The DNR, in cooperation with the Grant County LCD, should conduct baseline monitoring on 10 streams (**Platte River – 2 sites, Leggett Branch, Newell Creek, Martinsville Creek, Culver Branch, McPherson Branch, Austin Branch, Bull Branch, Crow Branch, and Bacon Branch**) in the Platte River Watershed by 2006.
- ♦ The Wisconsin DNR should monitor **Willow Creek, Crow Creek, Leggett Creek, Culver Creek** and the **Platte River** to track the status of state endangered and threatened species and state species of concern.
- ♦ The following streams should be monitored to determine if the streams should be considered for addition to Wisconsin's 303(d) impaired waters list in 2002 as a result of habitat impairments due to nonpoint sources of pollution: **Austin Branch, Bull Branch, Crow Branch, Newell Creek, the remainder of Leggett Creek not on the list, and the Platte River.**
- ♦ The DNR should consider adding **Willow Creek** to the state's list of Exceptional Resource Waters due to a large population of a state-threatened species.
- ♦ The DNR Waters program, in partnership with local governmental agencies and local conservation groups, should identify opportunities to better protect riparian habitat and provide public access on reaches of the **Platte River**, particularly above Annaton Road. Other streams in the watershed where opportunities to better protect riparian habitat and provide public access should be considered are **Leggett Creek, McPherson Branch, Newell Creek and Martinville Creek.**

### **Outdoor Recreation, Wildlife Habitat and Protecting Open Space and Farmland**

- ♦ Grant County with the assistance of the Grant County UW-Extension office, Southwest Wisconsin Regional Planning Commission, and the Southwest Badger Resource Conservation and Development should investigate the feasibility and desirability of developing and promoting a county canoe trail on the **Platte River.**